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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/582,033

08/21/2007

Kyle Jiang

7492-105

1674

62836 7590 08/17/2009

BERLINER & ASSOCIATES  
555 WEST FIFTH STREET  
31ST FLOOR  
LOS ANGELES, CA 90013

EXAMINER

CHEA, THORL

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

08/17/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/582,033	<b>Applicant(s)</b> JIANG ET AL.	
	<b>Examiner</b> Thorl Chea	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/07/2006</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. This first office action is responsive to the filing of this instant application; claims 1-18 are pending.

#### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 17-18 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over either Conradie E.H et al or Warren (US 2002/0115016A1). Conradie discloses a part containing SU-8 made by a process having a step similar to that claimed in the present claimed invention. See page 369, Fig.1; page 270, Fig.2; page 372, Fig.6 and the processing step on page 369, second column wherein the prebaked SU-8 is exposed to uv illumination, and post-exposing baking, and then developing in undiluted PGMEA. See also the part taught in Warren in Fig.1.

Conradie or warren may not disclose the use of total energy density of from 18,000 to 35,000 mj/cm<sup>2</sup> presented in claim 1 or at least 20 % of the uv light emitted from the mercury lamp

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having wavelength 365 nm is filtered out. However, the material claimed in the present claimed invention is related to the claiming of a material by a process, wherein the patentability of the product does not depend on its method of production. “(E)ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or obvious from a product of prior art, the claim is unpatentable even though the prior art product was made by different process.” In re Thorpe 777 F.2d 695, 698, 227 USPQ 694, 966 (Fed. Cir. 1985). In this case, the material taught in Conradie et al or Warren contains same epoxy and have similar structure including part or cylinder claimed in the present invention such as shown in the Figs. Shown above. In the absence of showing that the process claimed in the present claimed invention produces different or unobvious product, it is asserted the material taught in Conradie et al or Warren is either anticipated by or would have been found obvious to the worker of ordinary skill in the art at the time the invention was made.

5. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Minsek et al (US 6,716,568), Ohkubo et al (US 5,118,518), and Zhong-gen Link. Minsek et al discloses a process substantially as claimed See negative epoxy resin in column 4, lines 20-55, and the process in column 5, lines 50-65 which provides spin coating process, photoimaged using an exposure tool with near-ultraviolet radiation from medium or high-pressure mercury lamp; post-exposure-baked, and then immerse in an organic solvent in order to dissolve away the un-polymerized region. Ohkubo et al (column 5, lines 20-37) discloses the polymerization of polymer including using a uv ray from a high pressure mercury lamp such

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that the total quantity is 1.0 to 200  $\text{j/cm}^2$ . Zhong-gen Link. Discloses an improved patterning quality of SU-8 microstructures by optimizing the exposure parameters including the thickness of SU-8, wavelength of uv and exposure dose. See for instance page 1024 which discloses the dimension change vs doses; page 1021, Fig.4, wavelength vs absorption coefficient. Misek et al may not may not disclose the use of total energy density of from 18,000 to 35,000  $\text{mj/cm}^2$  presented in claim 1 or at least 20 % of the uv light emitted from the mercury lamp having wavelength 365 nm is filtered out in claim 4, but discloses the use of medium or high-pressure mercury lamp which produce uv encompasses the scope of uv used in the present claimed invention. Moreover, the high-pressure mercury lamp has been known to produce the total quantity is 1.0 to 200  $\text{j/cm}^2$ . Also, it has been known to improve the microstructure containing SU-8 in term of thickness, dose of uv and wavelength thereof such as taught in Conradie E.H et al. Therefore, it would have been obvious to the worker of ordinary skill in the art to use an high pressure mercury lamp that produce a total quantity of 1.0 to 200  $\text{j/cm}^2$  taught in Ohkubo to expose the negative epoxy resin taught Minsek et al using an optimizing process taught in Zhong-gen Link, and thereby provide a process as claimed. The percent of at least 20 % of the UV light emitted from the mercury lamp having at least a wavelength of 365 nm is filtered out presented in claim 4 would have been obvious to the worker ordinary skill in the art since the wavelength produced by mercury lamp produces generate wavelength encompasses the scope of wavelength remaining in the spectrum. It would obvious to filter out the wavelength that is not useful in the polymerization process.

### ***Conclusion***

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6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thorl Chea whose telephone number is (571) 272-1328. The examiner can normally be reached on 9 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on (571)272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TC/  
August 7, 2009

/Thorl Chea/  
Primary Examiner, Art Unit 1795